REMARKS

The specification has been amended to provide a cross-reference to the previously filed International Application.

Entry of the above amendments is earnestly solicited. An early and favorable first action on the merits is earnestly solicited.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: VERSION WITH MARKINGS TO SHOW CHANGES MADE

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The specification has been amended to provide a cross-reference to the previously filed International Application.

IN THE SPECIFICATION:

The paragraph beginning on page 2, line 12, has been amended as follows:

Fig. 2(a) shows an encoder used in the trellis coded modulation method that uses Turbo codes as element codes. Fig. 2(b) is an encoder used in 16QAM (quadrature amplitude modulation). Fig. 2(c) shows a construction of a tone in a multi-carrier modulation and demodulation method. Referring to [Fig. 2] Figs. 2(a)-2(c), a Turbo encoder 1 receives an input of two information bits and outputs two information bits and 2 redundancy bits. A conversion 2 subjects a bit sequence output from the Turbo encoder to conversion. A mapper 3 converts the bit sequence converted by the conversion 2 into the signal points.

The paragraph beginning on page 2, line 20, has been amended as follows:

Fig. 3 shows a construction of the Turbo encoder 1 of [Fig. 2] Figs. 2(a)-2(c). Referring to Fig. 3, the Turbo encoder 1 includes a recursive systematic convolutional encoder 11, interleavers 12 and 13, a recursive systematic convolutional encoder 14 and a deinterleaver 15.

The paragraph beginning on page 4, line 5, has been amended as follows:

[Fig. 4] Figs 4(a)-4(c) shows constellations of signal points that occur in various digital modulation techniques. Fig. 4(a) shows a constellation of signal points in 4PSK (phase shift keying), Fig. 4(b) shows a constellation of signal points in 16QAM, and Fig. 4(c) shows a constellation of signal points in 64QAM. Referring to Fig. 4, symbols A, B, C and D denote cosets, which are determined after the conversion.

The paragraph beginning on page 4, line 11, has been amended as follows:

Figs. 4(a)-4(c) shows constellations of signal points that occur in various digital modulation techniques. Fig. 4(a) shows a constellation of signal points in 4PSK (phase shift keying), Fig. 4(b) shows a constellation of signal points in 16QAM, and Fig. 4(c) shows a constellation of signal points in 64QAM. Referring to [Fig. 4] 4(a)-4(c), symbols A, B, C and D denote cosets, which are determined after the conversion.

The paragraph beginning on page 4, line 25, has been amended as follows:

When the coset is determined, the mapper 3 receives the coset and the high-order information bit so as to determine the transmitted signal point W or the transmitted signal point V based on the constellation of [Fig. 4] 4(a)-4(c).

The paragraph beginning on page 13, lines 3-17, has been amended as follows:

method;

Fig. 3 shows a construction of the Turbo encoder of [Fig. 2] Figs. 2(a)-2(c);

[Fig. 4 shows constellations of signal points that occur in various digital modulation techniques] Fig. 4(a) shows a constellation of signal points in 4PSK;

Fig. 4(b) shows a constellation of signal points in 16QAM;

Fig. 4(c) shows a constellation of signal points in 64QAM;

Fig. 4(d) shows a table referred to in order to determine cosets;

Fig 4(e) shows a table for use in 16QAM of Fig. 4B to determine one of areas E, F, G and H of the transmitted signal point responsive to the transmitted high-order information bit w_3, w_2 (or v_3, v_2);

Fig. 5 is a flowchart showing a demodulating method according to a first embodiment of the present invention;

Fig. 6 is a graph showing the probability of decoding error when the decoding according to the invention is performed;

Fig. 7 shows a demodulating apparatus according to a second

embodiment of the present invention; and

[Fig. 8 shows areas for determination of high-order information bit and the like] Fig. 8 (a) shows a comparison between the related art and the present invention about the areas for determination of high-order information bit;

Fig. 8 (b) shows a square Euclidean distance form a nearest signal point;

Fig 8 (c) shows an Euclidean distance from a threshold value; and

Fig 8 (d) shows tables referred to in order to determine cosets.